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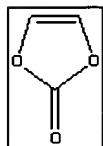
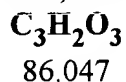
Enter a chemical name, CAS Number, molecular formula, or molecular weight

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## 1,3-Dioxol-2-one [872-36-6]

**Synonyms:** Vinylene carbonate; Vinylene carbonate, 97% (Assay);



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ACX Number X1041811-0

Melting Point (°C)

Boiling Point (°C)

Refractive Index

Evaporation Rate

Flash Point (°C)

DOT Number

Comments

CAS RN 872-36-6

Density

Vapor Density

Vapor Pressure

Water Solubility

EPA Code

RTCS

More information about the chemical is available in these categories:

**Biochemistry**

Chemicals Inspection and Testing Service, Japan: Biodegradation and Bioaccumulation Data of Existing Chemicals

Information about this particular compound

**Chemical Online Order**

Available Chemicals Exchange

Information about this particular compound

**Health**

ATSDR Internet HazDat Site Contaminant Query

Information about this particular compound

**Physical Properties**

NIST Chemistry WebBook

Information about this particular compound

ABCR GmbH&Co KG

Ethylene carbonate

Ethylene carbonate, 99%

Proton NMR Spectral Molecular Formula Index

Information about this particular compound

Galactic Industries Corporation Spectral Database

FTIR SPECTRUM of ETHYLENE CARBONATE, 98%

NFPA Chemical Hazard Labels

Information about this particular compound

**Regulations**

Texas Clean Air Act

Enter a chemical name, CAS Number, molecular formula, or molecular weight

New Search

Substructure Query with Plug-In or Substructure Query with Java

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LabEquip.Com

ChemSoft.Com

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[ChemACK.Com](#)[ChemStore.Com](#)  
[SciStore.Com](#)[ChemNews.Com](#)  
[LabSquid.Com](#)[ChemClub.Com](#)  
[ChemSali.Com](#)

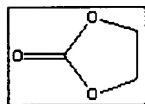
Enter a chemical name, CAS Number, molecular formula, or molecular weight

**New Search**Or choose: [Substructure Query with Plug-In](#) or [Structure Query with Java](#)

## Ethylene Carbonate [96-49-1]

**Synonyms:** ethylene glycol carbonate; 1,3-Dioxolan-2-one;

88.0628

[View with ChemDraw Plugin](#)[BUY AT CHEMACS.COM](#)[VIEW CHEM3D MODEL](#)[Add Compound](#)[Add or Change  
Property](#)[Add Link](#)[Feedback](#)**ACX Number** X1006793-5**Melting Point (°C)** 35 - 37**Boiling Point (°C)** 243 - 244 at 740 mm Hg**Refractive Index****Evaporation Rate****Flash Point (°C)** 145**DOT Number****Comments****CAS RN** 96-49-1**Density** 1.321**Vapor Density****Vapor Pressure****Water Solubility****EPA Code****RTCS** FF9550000**More information about the chemical is available in these categories:**

L12 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 9011-17-0 REGISTRY

CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Ethene, 1,1-difluoro-, polymer with 1,1,2,3,3,3-hexafluoro-1-propene  
(9CI); Propene, hexafluoro-, polymer with 1,1-difluoroethylene (8CI)

OTHER NAMES:

CN 1,1-Difluoroethylene-1,1,2,3,3,3-hexafluoro-1-propene copolymer;  
1,1-Difluoroethylene-hexafluoropropene copolymer; 1,1-Difluoroethylene-  
hexafluoropropene polymer; 1,1-Difluoroethylene-hexafluoropropylene  
copolymer; 1,1-Difluoroethylene-perfluoropropene copolymer; Akeogard CO;  
Ethylidene fluoride-hexafluoropropene copolymer; F 26; F 26L;  
Fluoroplast 26; Ftorlon F 26; Ftoroplast 26; Ftoroplast 26L;  
Ftoroplast F 26; FX 9613; Hexafluoropropene-vinylidene fluoride  
copolymer; Hexafluoropropene-vinylidene fluoride polymer;  
Hexafluoropropylene-vinylidene difluoride copolymer; Hexafluoropropylene-  
vinylidene difluoride polymer; Hexafluoropropylene-vinylidene fluoride  
copolymer; Hexafluoropropylene-vinylidene fluoride polymer; Hylar 2800;  
Hylar FXH 6; KF 2000; KF 2300; KF Polymer T 2300; Kynar 1800; Kynar  
2750; Kynar 2751; Kynar 2800; Kynar 2801; Kynar 2801F; Kynar 2812;  
Kynar 2822; Kynar 2850; Kynar Flex 2750; Kynar Flex 2751; Kynar Flex  
2800; Kynar Flex 2801-00; Kynar Flex 2821; Kynar Flex 2822; Kynar Flex  
2850; Perfluoropropene-vinylidene fluoride copolymer;  
Perfluoropropene-vinylidene fluoride polymer; Perfluoropropylene-  
vinylidene fluoride copolymer; Perfluoropropylene-vinylidene fluoride  
polymer; Poly(vinylidene fluoride-hexafluoropropylene); Propylene  
hexafluoride-vinylidene fluoride copolymer; Propylene  
hexafluoride-vinylidene fluoride polymer; SF 2; SF 2 (polymer); Solef  
10512; Solef 11010; Solef 11012; Solef 11512; Solef 21010; Solef  
21508; Solvay 20615; Tecnoflon FOR 4; Vinylidene difluoride-  
hexafluoropropylene copolymer; Vinylidene fluoride-hexafluoropropene  
copolymer; Vinylidene fluoride-hexafluoropropene polymer; Vinylidene  
fluoride-hexafluoropropylene copolymer; Vinylidene fluoride-  
hexafluoropropylene polymer; Vinylidene fluoride-perfluoropropene  
copolymer; Vinylidene fluoride-perfluoropropene polymer; Vinylidene  
fluoride-propylene hexafluoride copolymer; Viton Free Flow TA

L14 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:10867 CAPLUS  
 TITLE: Non-aqueous electrolyte and non-aqueous electrolyte secondary battery  
 INVENTOR(S): Unoki, Shigeyuki; Konishi, Hajime; Yamashita, Katsumi; Watanabe, Shoichiro; Takeuchi, Takashi; Takezawa, Hideharu; Hamamoto, Toshikazu; Ueki, Akira; Abe, Koji  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan; Ube Industries, Ltd.  
 SOURCE: PCT Int. Appl., 40 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002001665	A1	20020103	WO 2001-JP4924	20010611
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
PRIORITY APPLN. INFO.:		JP 2000-191795	A	20000626
		JP 2000-352185	A	20001120

AB A non-aq. electrolyte contg. propylene carbonate and 1,3-propanesultone as additives can reduce the amt. of a gas evolved during storage at a high temp. of a non-aq. electrolyte secondary battery comprising the electrolyte, a non-aq. electrolyte contg. at least one compd. selected from the group consisting of vinylene carbonate, di-Ph disulfide, di-p-tolyl disulfide and bis(4-methoxyphenyl)disulfide as an additive can improve cycle characteristics of a non-aq. electrolyte secondary cell comprising the electrolyte, and a non-aq. electrolyte contg. a combination of the above two types of additives can provide a non-aq. electrolyte secondary cell exhibiting excellent retention of capacity and storage stability.

IT Battery electrolytes  
 Secondary batteries  
 Solid state secondary batteries  
 (non-aq. electrolyte and non-aq. electrolyte secondary battery)

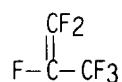
IT Carbon black  
 RL: DEV (Device component use); USES (Uses)  
 (non-aq. electrolyte and non-aq. electrolyte secondary battery)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 4437-85-8, Butylene carbonate 7782-42-5, Graphite 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate (LiPF6) 24937-79-9, Polyvinylidene fluoride  
 RL: DEV (Device component use); USES (Uses)  
 (non-aq. electrolyte and non-aq. electrolyte secondary battery)

IT 103-19-5, Di-p-tolyl disulfide 108-32-7, Propylene carbonate  
872-36-6, Vinylene carbonate 882-33-7, Diphenyl disulfide  
1120-71-4, 1,3-Propanesultone 5335-87-5, Bis(4-methoxyphenyl)disulfide  
RL: MOA (Modifier or additive use); USES (Uses)  
(non-aq. electrolyte and non-aq. electrolyte secondary battery)  
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: DEV (Device component use); USES (Uses)  
(non-aq. electrolyte and non-aq. electrolyte secondary battery)  
RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 116-15-4  
CMF C3 F6

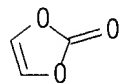


CM 2

CRN 75-38-7  
CMF C2 H2 F2



IT 872-36-6, Vinylene carbonate  
RL: MOA (Modifier or additive use); USES (Uses)  
(non-aq. electrolyte and non-aq. electrolyte secondary battery)  
RN 872-36-6 CAPLUS  
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2001:676382 CAPLUS

DOCUMENT NUMBER: 135:213509  
 TITLE: Solid electrolyte battery  
 INVENTOR(S): Hara, Tomitaro; Shibuya, Mashio; Suzuki, Yusuke  
 PATENT ASSIGNEE(S): Sony Corp., Japan  
 SOURCE: Eur. Pat. Appl., 13 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1132987	A2	20010912	EP 2001-105134	20010302
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001256999	A2	20010921	JP 2000-72512	20000310
NO 2001001210	A	20010911	NO 2001-1210	20010309
CN 1319906	A	20011031	CN 2001-111305	20010309
PRIORITY APPLN. INFO.:			JP 2000-72512	A 20000310

AB In a solid electrolyte cell, oxidative decompn. of electrolyte components is suppressed to maintain the superior cell performance. The solid electrolyte includes a neg. electrode having a neg. electrode current collector and a neg. electrode active material, a pos. electrode having a pos. electrode current collector and a pos. electrode active material and a solid electrolyte arranged between the neg. electrode and the pos. electrode and which is comprised of an electrolyte salt dispersed in a matrix polymer. A diene compd. is contained in at least one of the pos. electrode and the solid electrolyte.

IT Sulfonic acids, uses  
 RL: DEV (Device component use); USES (Uses)  
 (alkanesulfonic; solid electrolyte battery contg. diene compd.)

IT Secondary batteries  
 (lithium; solid electrolyte battery contg. diene compd.)

IT Polysulfones, uses  
 RL: DEV (Device component use); USES (Uses)  
 (polyether-; solid electrolyte battery contg. diene compd.)

IT Polyethers, uses  
 RL: DEV (Device component use); USES (Uses)  
 (polysulfone-; solid electrolyte battery contg. diene compd.)

IT Battery anodes  
 Battery cathodes  
 Battery electrolytes  
 (solid electrolyte battery contg. diene compd.)

IT Fluoropolymers, uses  
 Polycarbonates, uses  
 Polyoxyalkylenes, uses  
 Polysulfones, uses  
 RL: DEV (Device component use); USES (Uses)  
 (solid electrolyte battery contg. diene compd.)

IT Cycloalkadienes

RL: MOA (Modifier or additive use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

IT 60-29-7, Diethyl ether, uses 67-68-5, DmsO, uses 75-05-8,  
Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0,  
.gamma.-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl  
carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran,  
uses 110-71-4, 1,2-Dimethoxyethane 452-10-8, 2,4-Difluoroanisole  
616-38-6, Dimethyl carbonate 646-06-0, 1,3-Dioxolane 872-36-6,  
Vinylene carbonate 7550-35-8, Lithium bromide 7782-42-5,  
Graphite, uses 7789-24-4, Lithium fluoride, uses 7791-03-9,  
Lithium perchlorate 9002-84-0, PtfE 9003-05-8, Polyacryl amide  
12190-79-3, cobalt lithium oxide colio2 14283-07-9,  
Lithium tetrafluoroborate 21324-40-3, Lithium  
hexafluorophosphate 24937-79-9, Polyvinylidene fluoride 25087-26-7,  
Polymethacrylic acid 25322-68-3, Peo 25322-69-4, Polypropylene oxide  
29935-35-1, Lithium hexafluoroarsenate 33454-82-9,  
Lithium triflate 90076-65-6 131651-65-5, Lithium  
perfluorobutanesulfonate 132404-42-3

RL: DEV (Device component use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

IT 628-41-1, 1,4-Cyclohexadiene

RL: MOA (Modifier or additive use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer

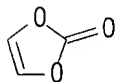
RL: TEM (Technical or engineered material use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

IT 872-36-6, Vinylene carbonate

RL: DEV (Device component use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

RN 872-36-6 CAPLUS

CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer

RL: TEM (Technical or engineered material use): USES (Uses)  
(solid electrolyte battery contg. diene compd.)

RN 9011-17-0 CAPLUS

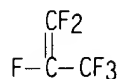
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 116-15-4

CMF C3 F6





CM 2

CRN 75-38-7  
CMF C2 H2 F2



L14 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2001:488750 CAPLUS  
DOCUMENT NUMBER: 135:79460  
TITLE: Nonaqueous electrolytic secondary battery  
INVENTOR(S): Hosoya, Yosuke  
PATENT ASSIGNEE(S): Sony Corporation, Japan  
SOURCE: Eur. Pat. Appl., 16 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

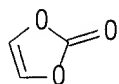
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1113515	A1	20010704	EP 2000-128148	20001221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001185221	A2	20010706	JP 1999-369266	19991227
US 2001036579	A1	20011101	US 2000-749982	20001227
PRIORITY APPLN. INFO.:			JP 1999-369266	A 19991227

AB A nonaq. electrolytic cell comprises a pos. electrode, which has a pos. electrode active material layer contg., at least a pos. electrode active material, a neg. electrode, which has a neg. electrode active material layer contg., at least, a neg. electrode active material, and an electrolyte wherein a sulfur compd. is added to at least one of the pos. electrode active material layer, the neg. electrode active material layer, and the electrolyte.

IT Battery anodes  
Battery cathodes  
Battery electrolytes  
Conducting polymers  
(nonaq. electrolytic secondary battery)

IT Coke

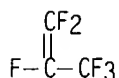
- Fluoropolymers, uses  
Polyacetylenes, uses  
Polyoxyalkylenes, uses  
Polyphosphazenes  
RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolytic secondary battery)
- IT Thiols (organic), uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(nonaq. electrolytic secondary battery)
- IT Carbon fibers, uses  
RL: DEV (Device component use); USES (Uses)  
(vitreous; nonaq. electrolytic secondary battery)
- IT 96-47-9, 2-Methyltetrahydrofuran 96-48-0, .gamma.-Butyrolactone  
96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7,  
Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane  
554-12-1, Methylpropionate 616-38-6, Dimethyl carbonate 623-42-7,  
Methyl butyrate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl  
carbonate 629-14-1, 1,2-Diethoxyethane 872-36-6, Vinylene  
carbonate 2916-31-6 4437-85-8, Butylene carbonate 7440-44-0, Carbon,  
uses 7782-42-5, Graphite, uses 7791-03-9, Lithium  
perchlorate 9011-17-0, Hexafluoropropylene-vinylidene fluoride  
copolymer 12190-79-3, cobalt lithium oxide colio2  
14283-07-9, Lithium tetrafluoroborate 21324-40-3,  
Lithium hexafluorophosphate 24937-79-9, PvdF 25067-58-7,  
Polyacetylene 25322-68-3, Peo 25322-69-4, Polypropylene oxide  
25684-76-8, Tetrafluoroethylene-vinylidene fluoride copolymer  
28960-88-5, Trifluoroethylene-vinylidene fluoride copolymer 29935-35-1,  
Lithium hexafluoroarsenate  
RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolytic secondary battery)
- IT 693-36-7, Distearyl thiodipropionate 7487-88-9, Magnesium sulfate, uses  
7757-82-6, Sodium sulfate, uses 7757-83-7, Sodium sulfite 7757-88-2,  
Magnesium sulfite 7778-80-5, Potassium sulfate, uses 10117-38-1,  
Potassium sulfite  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(nonaq. electrolytic secondary battery)
- IT 872-50-4, n-Methylpyrrolidone, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(nonaq. electrolytic secondary battery)
- IT 872-36-6, Vinylene carbonate 9011-17-0,  
Hexafluoropropylene-vinylidene fluoride copolymer  
RL: DEV (Device component use); USES (Uses)  
(nonaq. electrolytic secondary battery)
- RN 872-36-6 CAPLUS
- CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 116-15-4  
CMF C3 F6



CM 2

CRN 75-38-7  
CMF C2 H2 F2



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2001:247693 CAPLUS  
DOCUMENT NUMBER: 134:254717  
TITLE: Lactone solvents for electrochemical cells  
INVENTOR(S): Barker, Jeremy; Gao, Feng; Thurston, Edward P.  
PATENT ASSIGNEE(S): Valence Technology, Inc., USA; Delphi Technologies,  
Inc.  
SOURCE: PCT Int. Appl., 47 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001024305	A1	20010405	WO 2000-US20473	20000726

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,  
CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,  
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,  
AZ, BY, KG, KZ, MD, RU, TJ, TM  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,  
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 1999-408065 A1 19990929

AB An electrochem. cell is disclosed having an electrolyte comprising a solvent and a solute, the solute comprising a lithium salt, and the solvent comprising an org. solvent selected from the group of lactones.

IT Heterocyclic compounds

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(five-membered; lactone solvents for electrochem. cells)

IT Battery electrolytes

(lactone solvents for electrochem. cells)

IT Carbonates, uses

Lactones

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(lactone solvents for electrochem. cells)

IT Secondary batteries

(lithium; lactone solvents for electrochem. cells)

IT 7439-93-2D, Lithium, salt, uses 7782-42-5, Graphite, uses  
12031-65-1, Lithium nickel oxide linio2 12190-79-3, Cobalt  
Lithium oxide colio2 21324-40-3, Lithium  
hexafluorophosphate 39457-42-6, Lithium manganese oxide

RL: DEV (Device component use); USES (Uses)

(lactone solvents for electrochem. cells)

IT 7440-44-0, Carbon, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(lactone solvents for electrochem. cells)

IT 57-57-8, .beta.-Propiolactone 72-03-7, Propionate, uses 96-48-0D,  
.gamma.-Butyrolactone, ethylated 96-48-0D, .gamma.-Butyrolactone,  
methylated 96-48-0D, .gamma.-Butyrolactone, propylated 96-49-1,  
Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2 108-32-7,  
Propylene carbonate 542-52-9, Dibutyl carbonate 616-38-6, Methyl  
carbonate 623-96-1, Dipropyl carbonate 872-36-6, Vinylene  
carbonate 1679-47-6 4437-85-8, Butylene carbonate 73506-93-1,  
Diethoxyethane

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

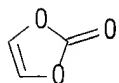
(lactone solvents for electrochem. cells)

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer

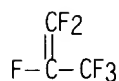
RL: TEM (Technical or engineered material use); USES (Uses)

(lactone solvents for electrochem. cells)

IT 872-36-6, Vinylene carbonate  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(lactone solvents for electrochem. cells)  
RN 872-36-6 CAPLUS  
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: TEM (Technical or engineered material use); USES' (Uses)  
(lactone solvents for electrochem. cells)  
RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)  
  
CM 1  
  
CRN 116-15-4  
CMF C3 F6



CM 2  
  
CRN 75-38-7  
CMF C2 H2 F2



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2001:246688 CAPLUS  
DOCUMENT NUMBER: 134:254694  
TITLE: Gel electrolyte battery  
INVENTOR(S): Shibuya, Mashio; Hatazawa, Tsuyonobu; Hara, Tomitaro;  
Shibamoto, Goro; Goto, Shuji

PATENT ASSIGNEE(S): Sony Corporation, Japan  
 SOURCE: Eur. Pat. Appl., 24 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1089371	A1	20010404	EP 2000-121124	20000928
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001167797	A2	20010622	JP 1999-375345	19991228
NO 2000004856	A	20010402	NO 2000-4856	20000927
CN 1293461	A	20010502	CN 2000-128592	20000930
PRIORITY APPLN. INFO.:			JP 1999-279790	A 19990930
			JP 1999-375345	A 19991228

AB The present invention provides a gel electrolyte cell including a nonaq. electrolytic soln. contg. lithium-contg. electrolyte salt solved in a nonaq. solvent and made into a gel state by a matrix polymer, and the gel electrolyte contains vinylene carbonate or deriv. thereof in the amt. not less than 0.05 wt% and not greater than 5 wt%. This gel electrolyte exhibits an excellent chem. stability with the neg. electrode, strength, and liq.-retention characteristic. This gel electrolyte enables to obtain a gel electrolyte cell satisfying the cell capacity, cycle characteristic, load characteristic, and low-temp. characteristic.

IT Battery electrolytes  
 Gels  
 (gel electrolyte battery)

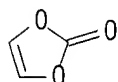
IT Fluoropolymers, uses  
 Polyoxyalkylenes, uses  
 RL: DEV (Device component use); USES (Uses)  
 (gel electrolyte battery)

IT Lithium alloy, base  
 RL: DEV (Device component use); USES (Uses)  
 (gel electrolyte battery)

IT 7429-90-5, Aluminum, uses  
 RL: DEV (Device component use); USES (Uses)  
 (current collector; gel electrolyte battery)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate  
 872-36-6, Vinylene carbonate 7439-93-2, Lithium, uses  
 7440-44-0, Carbon, uses 7791-03-9, Lithium perchlorate  
 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
 12190-79-3, Cobalt lithium oxide colio2 14283-07-9,  
 Lithium tetrafluoroborate 21324-40-3, Lithium  
 hexafluorophosphate 24937-79-9, PvdF 25014-41-9, Polyacrylonitrile  
 25067-61-2, Polymethacrylonitrile 25322-68-3, PEO 25322-69-4,  
 Polypropylene oxide 90076-65-6 113066-89-0, Cobalt lithium  
 nickel oxide Co0.2LiNi0.8O2 132843-44-8  
 RL: DEV (Device component use); USES (Uses)

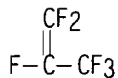
(gel electrolyte battery)  
IT 96-48-0, .gamma.-Butyrolactone 452-10-8, 2,4-Difluoroanisole  
7782-42-5, Graphite, uses 167951-81-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(gel electrolyte battery)  
IT 872-36-6, Vinylene carbonate 9011-17-0,  
Hexafluoropropylene-vinylidene fluoride copolymer  
RL: DEV (Device component use); USES (Uses)  
(gel electrolyte battery)  
RN 872-36-6 CAPLUS  
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 116-15-4  
CMF C3 F6



CM 2

CRN 75-38-7  
CMF C2 H2 F2



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2000:840169 CAPLUS  
DOCUMENT NUMBER: 134:7002  
TITLE: Solid electrolyte battery

INVENTOR(S): Akashi, Hiroyuki; Shibamoto, Gorou  
 PATENT ASSIGNEE(S): Sony Corporation, Japan  
 SOURCE: Eur. Pat. Appl., 42 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1056142	A1	20001129	EP 2000-110893	20000523
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001043897	A2	20010216	JP 1999-365064	19991222
CN 1275816	A	20001206	CN 2000-117653	20000526
PRIORITY APPLN. INFO.:			JP 1999-146653	A 19990526
			JP 1999-365064	A 19991222

AB A solid electrolyte battery (having improved energy d. and safety) incorporates a cathode, an anode disposed opposite to the cathode. and a separator disposed between cathode and the anode; and solid electrolytes each of which is disposed between the cathode and the anode.

IT Gels  
 (electrolyte; solid electrolyte battery)

IT Fluoropolymers, uses  
 RL: DEV (Device component use); USES (Uses)  
 (gel electrolyte; solid electrolyte battery)

IT Polyolefins  
 RL: DEV (Device component use); USES (Uses)  
 (separator; solid electrolyte battery)

IT Battery electrolytes  
 (solid electrolyte battery)

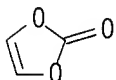
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 452-10-8, 2,4-Difluoroanisole 872-36-6, Vinylene carbonate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene fluoride  
 RL: DEV (Device component use); USES (Uses)  
 (gel electrolyte; solid electrolyte battery)

IT 9002-88-4, Polyethylene 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
 RL: DEV (Device component use); USES (Uses)  
 (solid electrolyte battery)

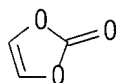
IT 872-36-6, Vinylene carbonate  
 RL: DEV (Device component use); USES (Uses)  
 (gel electrolyte; solid electrolyte battery)

RN 872-36-6 CAPLUS

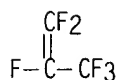
CN 1.3-Dioxol-2-one (9CI) (CA INDEX NAME)







IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: DEV (Device component use); USES (Uses)  
(solid electrolyte battery)  
RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)  
  
CM 1  
  
CRN 116-15-4  
CMF C3 F6



CM 2  
  
CRN 75-38-7  
CMF C2 H2 F2



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2000:368802 CAPLUS  
DOCUMENT NUMBER: 133:7073  
TITLE: Electrolytes having improved low temperature  
performance  
INVENTOR(S): Barker, Jeremy; Gao, Feng; Stux, Arnold  
PATENT ASSIGNEE(S): Valence Technology, Inc., USA  
SOURCE: PCT Int. Appl., 47 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

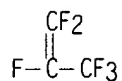
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000031817	A1	20000602	WO 1999-US22829	19990930
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9962812	A1	20000613	AU 1999-62812	19990930
EP 1153455	A1	20011114	EP 1999-950079	19990930
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRIORITY APPLN. INFO.:			US 1998-196882	A 19981120
			WO 1999-US22829	W 19990930
AB	The present invention provides a novel electrolyte solvent which is usable with a variety of carbonaceous and metal oxide electrode active materials, providing improved performance over a broad temp. range, and which is stabilized to maintain cell capacity over a no. of cycles. It comprises in specific mixts. a compd. represented by R'COOR'' where R' and R'' are each independently selected from the group of Et and Pr.			
IT	Battery electrolytes Electrolytes (electrolytes having improved low temp. performance)			
IT	Acrylic polymers, uses Carbonaceous materials (technological products) Glass fibers, uses RL: DEV (Device component use); USES (Uses) (electrolytes having improved low temp. performance)			
IT	Carbon fibers, uses RL: DEV (Device component use); USES (Uses) (graphitic; electrolytes having improved low temp. performance)			
IT	Secondary batteries (lithium; electrolytes having improved low temp. performance)			
IT	9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer RL: TEM (Technical or engineered material use); USES (Uses) (binder; electrolytes having improved low temp. performance)			
IT	96-49-1, Ethylene carbonate 105-37-3, Ethyl propionate 105-54-4, Ethyl butyrate 105-58-8, Diethyl carbonate 105-66-8, Propyl butyrate 106-36-5, Propyl propionate 108-32-7, Propylene carbonate 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 872-36-6, 1,3-Dioxol-2-one 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 9002-88-4 9003-07-0, Polypropylene 12031-65-1, Lithium nickel oxide linio2 12057-17-9, Lithium manganese oxide limn2o4 12190-79-3, Cobalt lithium oxide colio2 21324-40-3, Lithium hexafluorophosphate 39457-42-6, Lithium manganese oxide 73506-93-1, Diethoxyethane RL: DEV (Device component use); USES (Uses)			

(electrolytes having improved low temp. performance)  
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(binder: electrolytes having improved low temp. performance)  
RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 116-15-4

CMF C3 F6



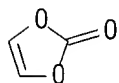
CM 2

CRN 75-38-7

CMF C2 H2 F2



IT 872-36-6, 1,3-Dioxol-2-one  
RL: DEV (Device component use); USES (Uses)  
(electrolytes having improved low temp. performance)  
RN 872-36-6 CAPLUS  
CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:566292 CAPLUS

DOCUMENT NUMBER: 131:187349

TITLE: Novel electrochemically stable plasticizer for  
lithium ion batteries

INVENTOR(S): Liu, Peikang; Mitchell, Porter H.; Swoyer, Jeffrey;

PATENT ASSIGNEE(S): Barker, Jeremy  
 SOURCE: Valence Technology, Inc., USA  
 PCT Int. Appl., 52 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9944246	A1	19990902	WO 1999-US2593	19990205
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2001023039	A1	20010920	US 1998-32660	19980227
AU 9925895	A1	19990915	AU 1999-25895	19990205
EP 1060528	A1	20001220	EP 1999-905820	19990205
R: DE, ES, FR, GB, IT, IE				
PRIORITY APPLN. INFO.:			US 1998-32660	A1 19980227
			WO 1999-US2593	W 19990205

OTHER SOURCE(S): MARPAT 131:187349

AB An electrode compn. or precursor paste thereof is characterized by being formed from a compn. initially comprising an active material, and a plasticizer. Optionally, at least a portion of the plasticizer from the compn. has been removed, after polymn. of the polymer material. The plasticizer is at least one compd. represented by the general formula RO-CO-(CH<sub>2</sub>)<sub>4</sub>-CO-OR, where R is a low alkyl selected from the group consisting of Me, Et, Bu, pentyl and hexyl. The plasticizer is further characterized by electrochem. stability .ltorsim.4.5 V.

IT Battery anodes  
 Battery cathodes  
 Plasticizers

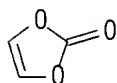
Secondary battery separators  
 (electrochem. stable plasticizer for lithium ion batteries)

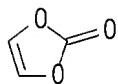
IT Secondary batteries  
 (lithium; electrochem. stable plasticizer for lithium ion batteries)

IT Coke  
 RL: DEV (Device component use); USES (Uses)  
 (nongraphitic amorphous, counterelectrode; electrochem. stable plasticizer for lithium ion batteries)

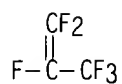
IT Glass fibers, uses  
 RL: DEV (Device component use); USES (Uses)  
 (separator matrix; electrochem. stable plasticizer for lithium ion batteries)

- ion batteries)
- IT 7782-42-5, Graphite, uses  
RL: DEV (Device component use); USES (Uses)  
(counterelectrode; electrochem. stable plasticizer for lithium ion batteries)
- IT 12057-17-9, Lithium manganese oxide  $\text{LiMn}_2\text{O}_4$  21324-40-3, Lithium hexafluorophosphate 39300-70-4, Lithium nickel oxide 52627-24-4, Cobalt lithium oxide  
RL: DEV (Device component use); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)
- IT 39448-96-9, Graphite lithium  
RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)
- IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 872-36-6, Vinylene carbonate 73506-93-1, Diethoxyethane  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)
- IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)
- IT 7440-44-0, Carbon, uses  
RL: DEV (Device component use); USES (Uses)  
(graphitic, counterelectrode; electrochem. stable plasticizer for lithium ion batteries)
- IT 105-99-7, Dibutyl adipate 106-19-4, Dipropyl adipate 110-33-8, Dihexyl adipate 141-28-6, Diethyl adipate 627-93-0, Dimethyl adipate 14027-78-2, Dipentyl adipate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(plasticizer; electrochem. stable plasticizer for lithium ion batteries)
- IT 9002-88-4, Polyethylene 9003-01-4, Polyacrylic acid 9003-07-0, Polypropylene  
RL: DEV (Device component use); USES (Uses)  
(separator matrix; electrochem. stable plasticizer for lithium ion batteries)
- IT 872-36-6, Vinylene carbonate  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)
- RN 872-36-6 CAPLUS
- CN 1,3-Dioxol-2-one (9CI) (CA INDEX NAME)





IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electrochem. stable plasticizer for lithium ion batteries)  
RN 9011-17-0 CAPLUS  
CN 1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene (9CI)  
(CA INDEX NAME)  
  
CM 1  
  
CRN 116-15-4  
CMF C3 F6



CM 2  
  
CRN 75-38-7  
CMF C2 H2 F2



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT